

Branislav Vidic, M.D.
Associate Professor of Anatomy
School of Medicine and Dentistry
Georgetown University
3900 Reservoir Road, N.W.
Washington, D.C. 20007

The Effect of Cigarette Smoke on Lung Metabolism.

The principal objectives of this research are to study the effect of cigarette smoke on (1) the biosynthesis of surfactant and connective tissue in the lung; and (2) the mechanical properties of the lung.

Rats will be chronically exposed to cigarette smoke and then subjected to three main experimental designs. The first aims to study the incorporation and turnover of labeled substrates presented to the intact animal. The second calls for manipulation of an isolated ventilated and perfused preparation of the lung, stressed mechanically and/or biochemically. The investigators will study the effect of these acute stresses on the biosynthesis and turnover of substrates in the lung. The third design involves isolation of the great alveolar cell and the study of in vitro surfactant synthesis.

The methodology has been worked out for measuring all desired parameters of lipid and protein metabolism. Preliminary studies were made on the effect of forced ventilation, and acute and chronic administration of substances with a known effect on the metabolism of the lung (e.g., cortisone). Actual exposure to smoke was started recently.

Activation Date: January 1, 1975

Current Grant Level: \$40,000.

1005075544

B-28A.